FDOT Automated Quantities



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Engineering CADD Systems Office

Objectives

- Cover the workflow for developing and recording/managing quantities for FDOT projects using tools and resources in the FDOTSS4 workspace for MicroStation/GEOPAK or PowerGEOPAK.
- Explore and learn how to use the tools in the Quantity Workflow to develop Plan Summary Boxes and Summary of Quantity Sheets, get the data to Designer Interface, and create the Summary of Pay Items Sheet.

Hour 1:

- FDOT Standards/Resources
- Calculate Quantities with D&C Manager
- Export to Quantity
 Manager Database
- Label Areas
- Add Quantities in Quantity Manager

Hour 2:

- Review Plan Summary Box Requirements
- Create Summary Boxes through Linked Data Manager
 - Automated
 - Non-Automated
- Generate Reports in Quantity Manager
- Get quantity information to AASHTOWare Project Preconstruction through Designer Interface
- Access Web Gate Reports to get Project Summary Reports for the Summary of Pay Items
- Create Summary of Pay Items Sheet

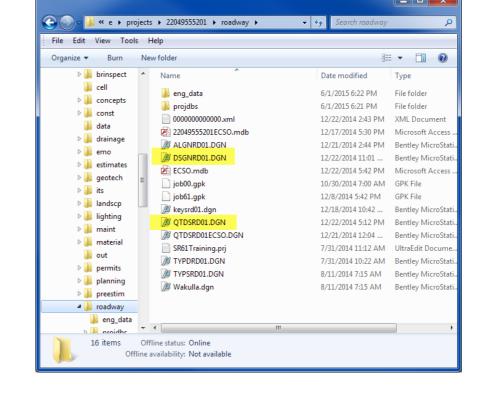


- Basis of Estimates
 Manual
 - Master Pay Item List
 - Pay Item Computation Methods
 - Chapter 8, Plan Summary Boxes
- Plans Preparation Manual
- CADD Manual





- Files
 - DSGN**
 - Linear and Each items
 - QTDSRD**
 - Area/Tonnage/Cubic Yard items
- Quantity Design Files are to be located in the appropriate Discipline directory of the project. This also applies to the Quantity Manager *.mdb file.
- Create with the Create File/Project tool to insure correct locations and seed files.





Linear/Each Features

- Most linear and each quantity features are included in the plan view and therefore drawn in the DSGN** file.
- These elements can be drawn using:
 - D&C Manager in the Design mode
 - Using Civil Features
 - Many of the FDOT Features are set up to use "Native Style".
 This means that in the background it is using the D&C settings
 to define the element. With most of the Civil Tools, this will
 include the adhoc attributes.
 - CHECK the adhocs set on the elements
 - No ability to modify the default values when placing with Civil Tools. Do they need to be modified?
 - Use the 3pc AdHoc Attribute tool to make changes
 - Or Set using the D&C Manager





Area Quantities

QTDSRD** Set Up

Recommended...

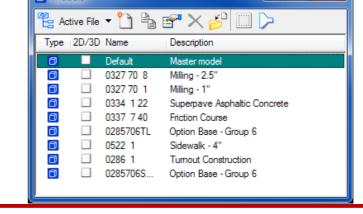
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 Setting up the Default model with all the reference files attached that may be needed for calculations.



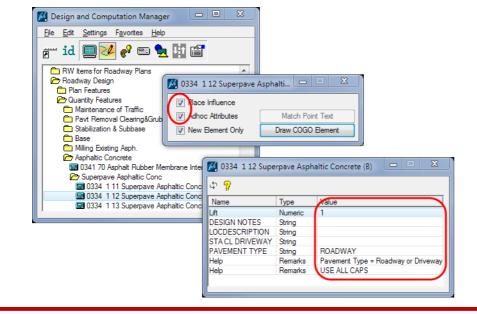
Copy the set up Default model to create the models for

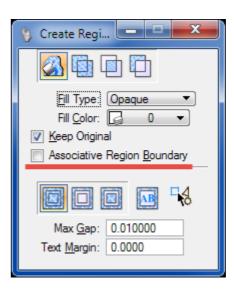
individual quantities/pay items.



Area Quantities

- Recommend using the Create Region tool to create area shapes with Place Influence from the D&C Manager
 - D&C Manager Shape tool does NOT "play well" with Civil Elements.
 - Make sure to toggle off the setting for Associative Region Boundary. D&C will NOT recognize the shape if you toggle this option on!!!
 - Adjust the Adhoc Values before creating the shapes.



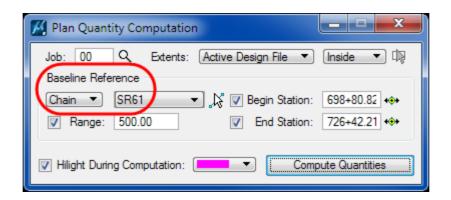






Calculate Quantities

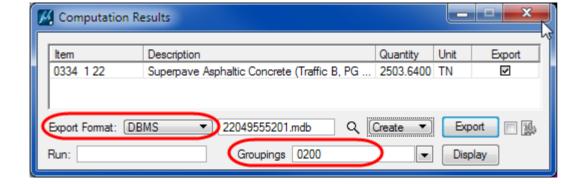
- Use the D&C Manager
- · Can calculate by single item, Category or Collection Set
- Make sure to use the option for Chain
 - Automated quantities must have a station associated with the quantity for LDM to include in the summary box.





Export Quantities

- Computation Results dialog allows the option to Export the quantities in multiple formats
 - To export to Quantity Manager the Export Format needs to be set to DBMS
 - Make sure to modify the Groupings to the correct AASHTOWare Project Preconstruction category. (See BOE Chapter 9)



Items are categorized by pay item range:

Item Numbers (Specification Sections)	pecification		TRNS*PORT Category / Design Group/ Plans	
100-102	MOT		0200 Roadway	
103	Temporary Structures		_ ′	
104	Erosion Drainage		_	
	Control En	vironmental	_	
106-108	Environmental	Coordinator	_	
		Water/Erosion Control	_	
		Air Quality	_	
		Decontamination/Hazardous Materials	_	
109	Field Office		_	
110-199	"Dirt" Earthwork	Roadway		
		Erosion Control Topsoil/Vegetation	_	
200-299	Base Courses		_	
300-399	Surface Courses, Concrete Pavement		_	
except 346-347	Concrete		0100 Structures of 0200 Roadway	
400-499	Structures		0100 Structures	
except 425-449	Drainage Structures Incidental Construction- Structures Incidental Construction- Roadway Items		0200 Roadway	
500-515			0100 Structures	
516-559			0200 Roadway	
560-569	Incidental Construction- Structural Paint		0100 Structures	
570-599	Incidental Construction- Turf & Landscaping		0200 Roadway o 0600 Landscaping	
600-699	Traffic Control De	evices (Signals)	0500 Signals	
700-714	Traffic Control	(-9	0300 Signing	
715	Traffic Control- Lighting		0400 Lighting	
720-740	Incidental Construction- Other		0200 Roadway	
741-749	Incidental Construction- Traffic Monitoring (TMS)			
750-770	Incidental Constr	_		
780-789	Intelligent Transportation Systems (ITS)		0550 ITS	
800-899	Mass Transit (Railroad)		0900 Mass Transit	
1000-1999	Utilities		0100 Structures	

NOTE: While pay item ranges are generally grouped by category, some items may be used in multiple categories. Refer to the specific items for details.

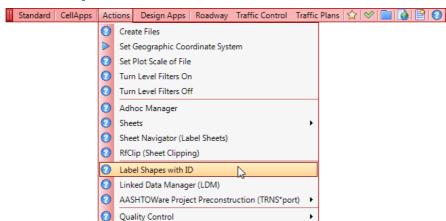




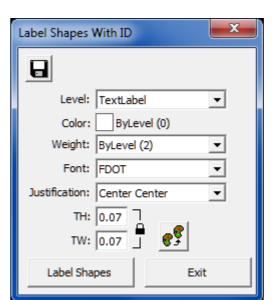
Label Area ID's

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- Labeling Area ID's is <u>REQUIRED</u>.
- Use the Label Shapes with ID VBA to label these areas
 - Found on the FDOT Plans Development
 Quantities Task Menu
 - OR on the FDOT Menu under Actions
 Label Shapes with ID



Create a selection set & then click Label Shapes.

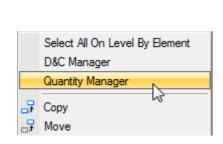


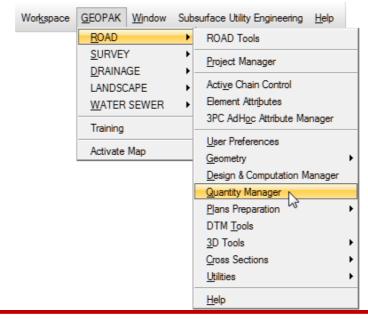


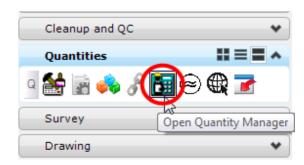


Quantity Manager

- GEOPAK application used to manage quantities.
- Access options:
 - In the QTDSRD file right click in the MicroStation window and select Quantity Manager from the pop up menu
 - Select GEOPAK > ROAD > Quantity Manager from the MicroStation menu
 - Select the Quantity Manager icon on the FDOT Plans Development > Quantities Task Menu



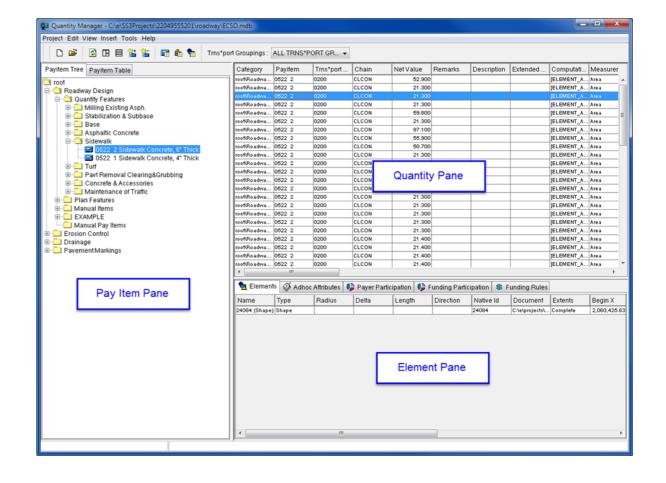






Quantity Manager

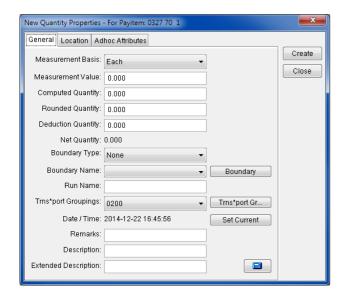
- Right click on the Quantity or Element Pane headers to change the column options
- Right click in the Pay Item Pane to get context sensitive menu options to add, edit and delete categories, items and quantities

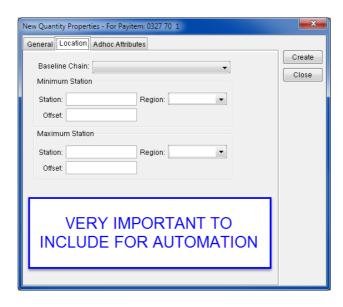


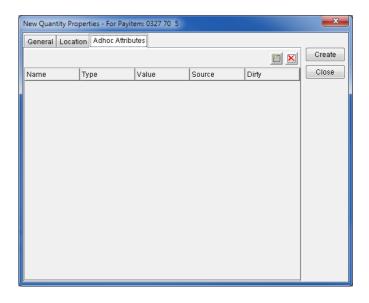


Quantity Manager

New Quantity Properties dialog box











Break...



Welcome Back...

Hour 2:

- Review Plan Summary Box Requirements
- Create Summary Boxes through Linked Data Manager
 - Automated
 - Non-Automated
- Generate Reports in Quantity Manager
- Get quantity information to AASHTOWare Project Preconstruction through Designer Interface
- Access Web Gate Reports to get Project Summary Reports for the Summary of Pay Items
- Create Summary of Pay Items Sheet



- ALL quantities are to be documented by location on Plan Summary Boxes for Roadway & Structures components.
- Plan Summary Boxes are to be located on the Summary of Quantities sheets.
 - Plan Set Location
 - Roadway keep in same order sequence behind the Typical Section sheets
 - Structures Directly behind the Summary of Pay Items in the General Bridge section (or behind the Key Sheet if no Summary of Pay Items sheet) STANDARDS
 - File Name
 - Roadway SUMQRD**
 - Structures B#SumofQuantities*
 - Sheet Prefix
 - Roadway SQ-
 - Structures BQ#-

Each Bridge will have a separate Summary of Structural Quantities sheet (or sheets). Number the Summary of Structural Quantities sheets BQ#-#. Example: if there are general bridge pay items (mobilization MOT etc) the sheet will be the first summary of structural quantities sheet and the sheet number will be BQ-1. The summary of quantities for bridge one will follow; sheet number(s) BQ1-1, BQ1-2 etc., followed by bridge 2; sheet number BQ2-1, BQ2-2 etc..



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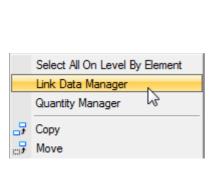
- Other components (i.e. Signing & Pavement Markings, Signalization, Lighting, etc.) are to use Tabulation of Quantities sheets.
 - DGN file goes in the DISCIPLINE directory.
- Drainage systems are to be documented on the Summary of Drainage Structures sheets same as they have always been handled.
 - Do NOT add pay item numbers.
 - Incidental drainage items to a project can be documented on the Summary of Miscellaneous Drainage Items.
 - Intended for projects with Miscellaneous Drainage Items or on projects with minimal drainage work, i.e. replacing broken inlet tops or moving structures to accommodate added turn lanes, etc.
 - Do NOT include items on this box that are included on the Summary of Drainage Structures sheets.

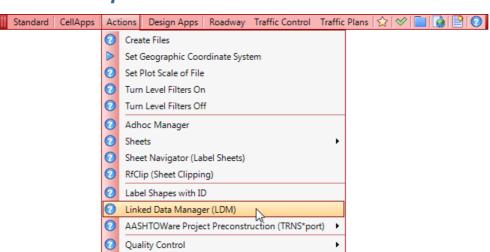
- A listing of standard summary boxes is located in Chapter 8 of the BOE.
 - http://www.dot.state.fl.us/programmanagement/Estimates/ BasisofEstimates/BOEManual/Files/Chapter08SummaryBox es.pdf
 - Now contains links within the document to navigate to example summary boxes.
- Do NOT modify the title of the Summary Boxes.
- Do NOT create non-standard boxes or modify current summary boxes with Non-Standard columns or rows.

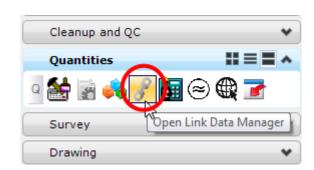




- FDOT tool that uses Excel templates to generate Plan Summary Boxes.
- Creates a link between the Excel file and the MicroStation dgn file for easy updates.
- Access through
 - Right click menu (in SUMQRD file)
 - FDOT Menu > Actions > Linked Data Manager
 - FDOT Plans Development task menu > Quantities

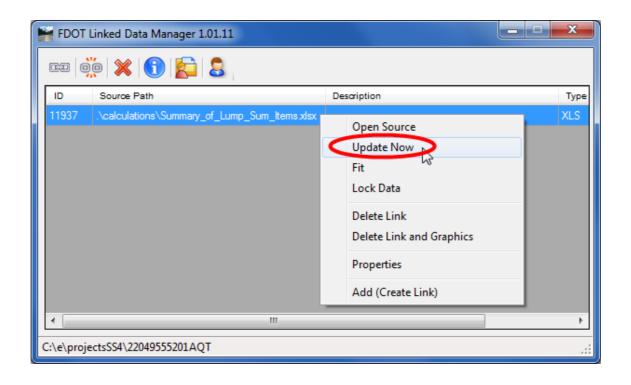








 Always make changes to spreadsheet, save and then right click on the link in the list and choose Update Now.





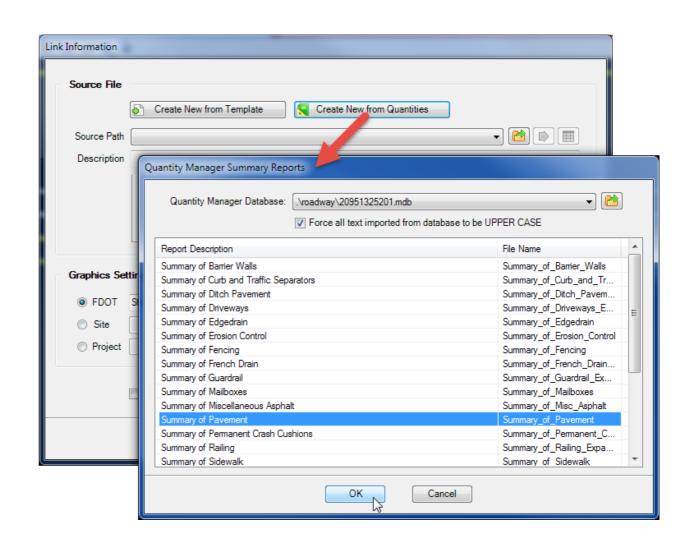
Note: this is a ONE WAY process. Changes made in MicroStation cannot be updated to Excel.

- Formatting in MicroStation is controlled through Excel files.
 - FDOT templates have already been formatted for use.
 - Columns and rows may be adjusted or hidden in Excel and change is reflected in MicroStation when link is updated.
 - Columns may be deleted when not used. However do NOT delete the Construction Remarks or "F" columns.
 - When copying data into the template files, make sure to use the "Values Only" option to paste.



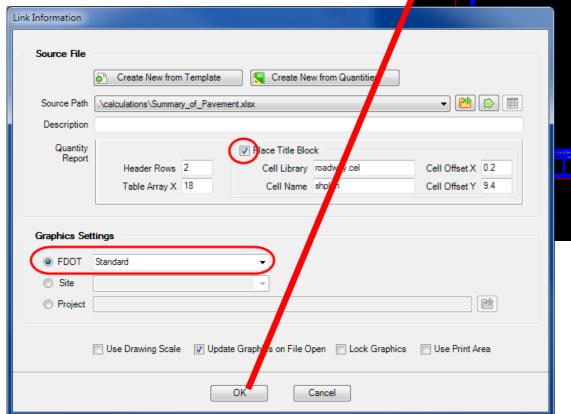
- Automating Plan Summary Boxes
 - When creating a link use the Create New from Quantities option.
 - Select the QM database (*.mdb)
 - Use the toggle option to create the box using all upper case.
 - Select the Summary to be created
 - Save the file to the Calculations directory of the project

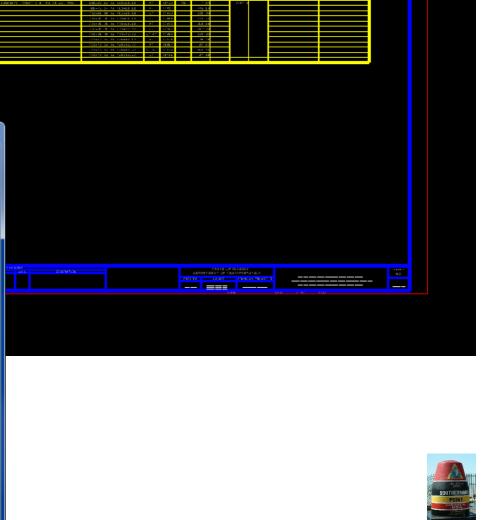
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 Automating Plan Summary Boxes

> Set up the link settings and select OK to place the sheets and links





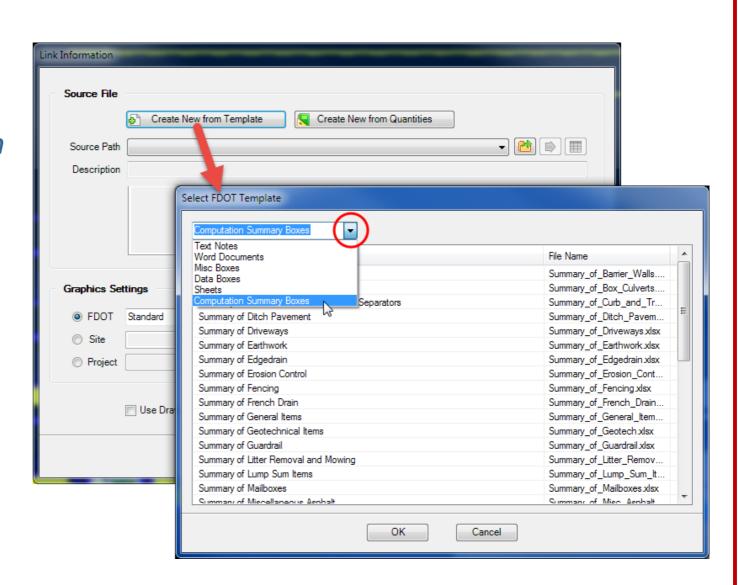


- Automating Plan Summary Boxes
 - Once placed, the plan sheet borders are not linked and can be moved/deleted as needed. Summary boxes can also be moved. There will be a separate link for each summary box placed.
 - If a quantity changes and the boxes need to be updated, the same process can be used. Overwrite the existing file in the Calculations folder and then cancel the placement of the links. Update the existing links for the summary boxes.
 - Note: If there are any customizations in the Excel file (i.e. columns hidden or widened) they will need to be redone in the newly created Excel file.



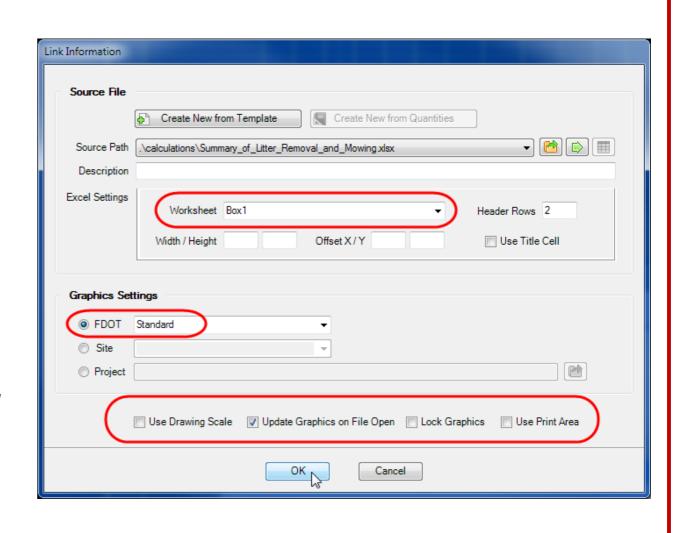
- Creating Plan Summary Boxes from Templates
 - When creating a link, select Create New From Template for summary boxes that are not included in the automated list.
 - Note: The templates are available for ALL summary boxes in the drop down for designers who do not wish to use D&C Manager or Quantity Manager.

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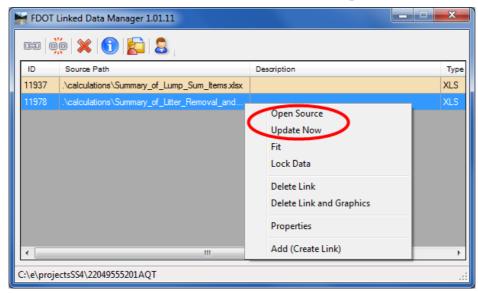
- Creating Plan Summary Boxes from Templates
 - Save the Excel file to the Calculations folder in the project directory.
 - Once saved, the Link Information dialog will come back up, select the Box1 worksheet from the dropdown.
 - Select the Graphic Settings.
 - Select desired link settings.
 - Click OK and click in the MS file to place the link and graphics.

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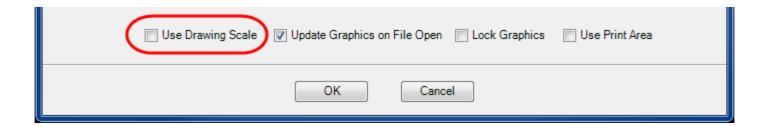
- Creating Plan Summary Boxes from Templates
 - Right click on the link in the LDM tool box to get the option Open Source.
 - Once open, make the necessary changes to the file and save.
 - In MS, right click on the link again and select Update Now.



 Note: Reports generated from QM will help to speed up this process.



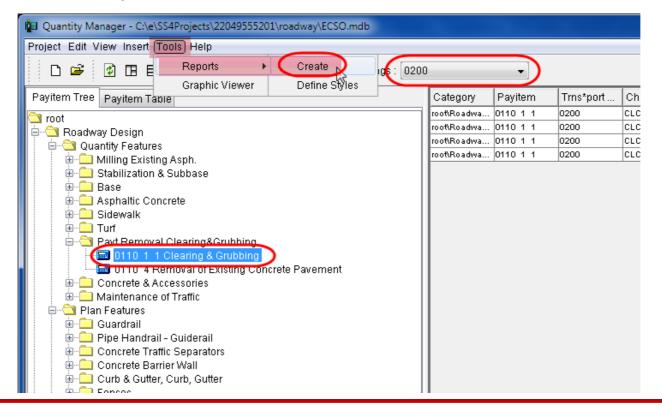
- Creating Plan Summary Boxes from Templates
 - Summary of Structures Quantities
 - Place the Plan Sheet at a scale of 12
 - Do not turn on the option to use the Drawing Scale





Quantity Manager (QM)

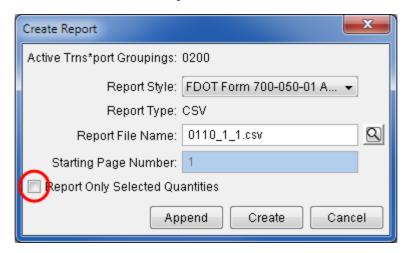
- Generating Reports
 - In QM, set the Trnsport Grouping setting to the appropriate category (Roadway = 0200)
 - Select the desired Pay Item in the Pay Item Pane.
 - Select Tools > Reports > Create from the QM menu.





Quantity Manager (QM)

- Generating Reports
 - On the report menu, select the report for the Area CSV file.
 - Type in a name for the output.
 - · Click Create. The file will open in Excel.



 This file can be used to copy and paste the information into the template file generated through LDM.



When pasting the information into the template, make sure to use the option for Values Only so that the formatting doesn't change.



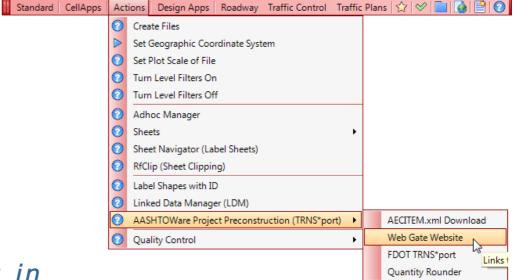
- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
- 3. Export the quantities report from QM (xml file)
- 4. Import the quantities to the project in DI



- 1. Export the Project Header information (xml file) from DI CADD links available to Web Gate Website
 - Quantities Task Menu

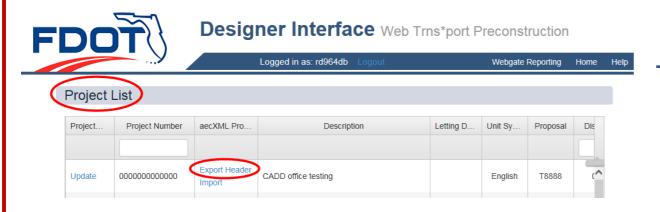


FDOT Actions Menu

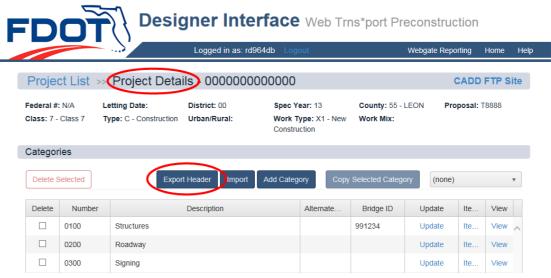




- Export the Project Header information (xml file) from DI
 - Exporting header information can be done in 2 locations...
 - Project List
 - Project Details
 - (Click Update in the Project... column to get to the Project Details)



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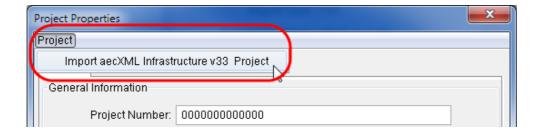
- 1. Export the Project Header information (xml file) from DI
 - Select the drop down option beside the Save option and choose Save As.
 - Save the xml to the project discipline directory (i.e. Roadway).

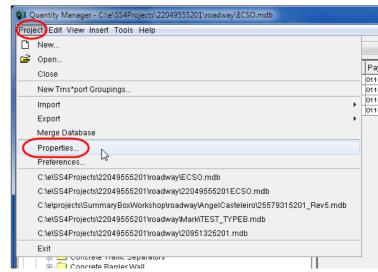
	Contact the Service Desk Web Policies & Notices			1
1				
	Do you want to open or save 000000000000.xml (770 bytes) from fdotwp1.dot.state.fl.us? Open Save ▼ Cancel	×	1 00% ▼	•



- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
 - In QM, select Project > Properties.



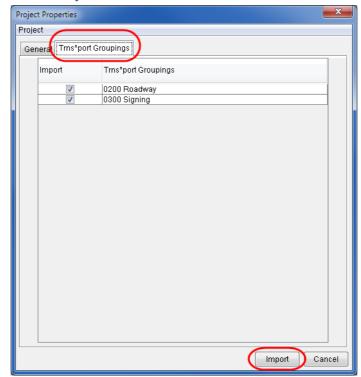






Select the downloaded file select Open.

- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
 - The Project Properties dialog opens with a new tab for the Trns*port Groupings.
 - Select the desired options and then click Import.



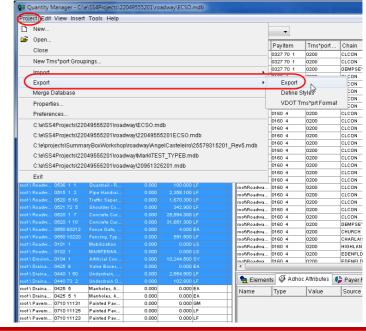


- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
- 3. Export the quantities report from QM (xml file)
 - Make sure the Trns*port Grouping is set.
 - 0200 Roadway
 - 0300 Signing & Pavement Markings

• In the Payitem Table view of the Pay Item Pane, select all of the

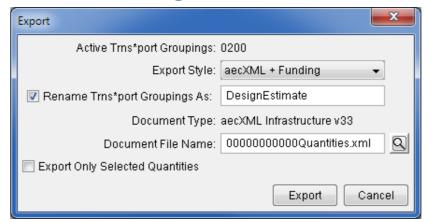
pay items desired to be exported.

• Select Project >Export > Export.





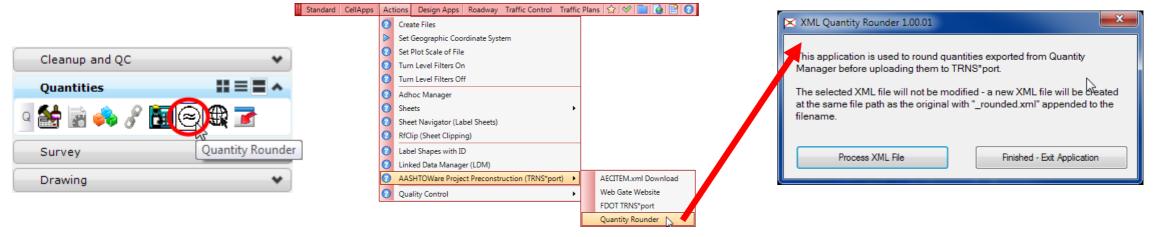
- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
- 3. Export the quantities report from QM (xml file)
 - On the Export dialog, select the Export Style, aecXML + Funding
 - Toggle ON the Rename option and set to "DesignEstimate".
 - Type in a name for the xml file generated.
 - Click Export.



- Click OK on the information dialog about Properties missing. This is normal. The file generated will have all the necessary information.
- Click OK on the Export Complete information dialog.



- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
- 3. Export the quantities report from QM (xml file)
 - In MS, open the Quantity Rounder tool.
 - Located on the FDOT Plans Development task menu > Quantities
 - OR on the FDOT Actions Menu



- Click Process XML File and navigate to and select the file exported from Quantity Manager.
- Click OK on the Created file dialog and then click Finished Exit Application.



- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
- 3. Export the quantities report from QM (xml file)
- 4. Import the quantities to the project in DI
 - On either the Project List or Project Details view, click on Import.

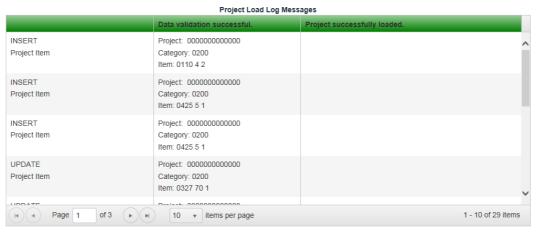


- Click on Select Files... and then navigate to the file exported and then rounded from the project directory. (It will have _Rounded appended to the file name.)
- Once selected click on Upload file.



Quantities - QM to Trnsport - Workflow

- 1. Export the Project Header information (xml file) from DI
- 2. Import the project header info into QM Project Preferences
- 3. Export the quantities report from QM (xml file)
- 4. Import the quantities to the project in DI
 - The results will show up on the screen. This is ALL or nothing.
 - Green Load Successful



Red – Errors (nothing loaded)

Туре	Info	Data Validation Errors	
Project Category	Project: Category: DesignEstimate Item: Quantity:	Invalid category number. Must be numeric (E16)	^





- Access Webgate Reporting
 - From DI



• From Web Gate site



Contract Proposal Processing

Long Range Estimating

Contract Proposal Processing Online Ordering

Contact Us Employment MyFlorida.com Performance Statement of Agency Web Policies & Notices

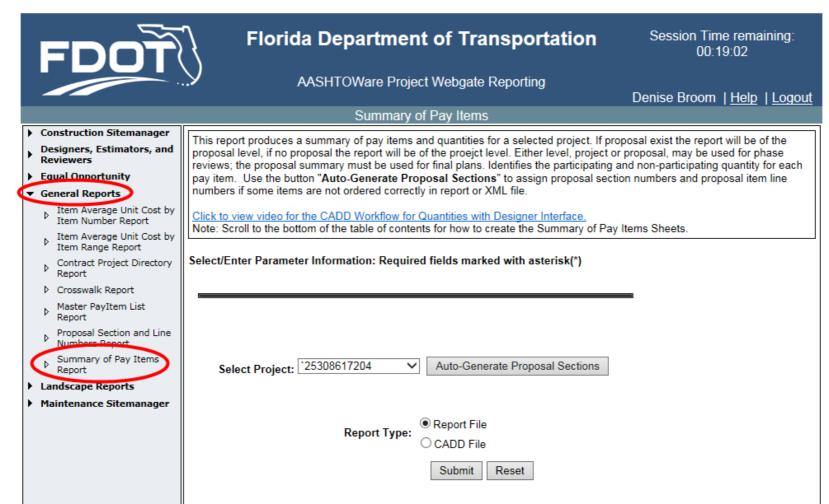
Other Links



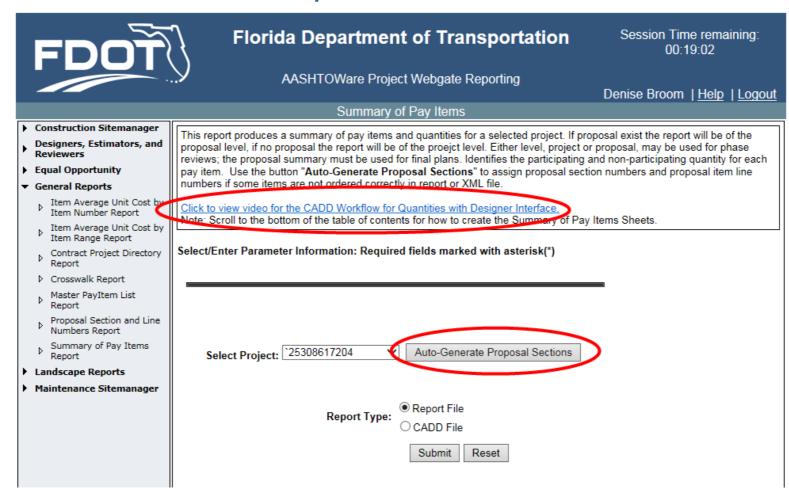
• Select General Reports > Summary of Pay Items

Report

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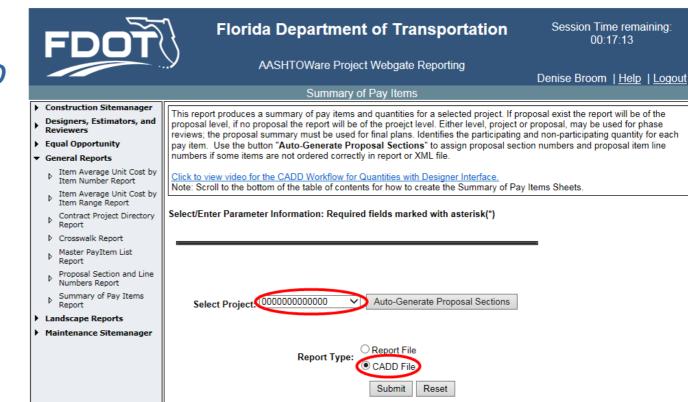


- Help link CADD Posted Webinar
- NEW!!! Auto-Generate Proposal Sections





- Select the Project
- Select Report Type: CADD File
- Click Submit
- Select the Save As option
 - Rename the file if the Project Header file is named the same as the default.

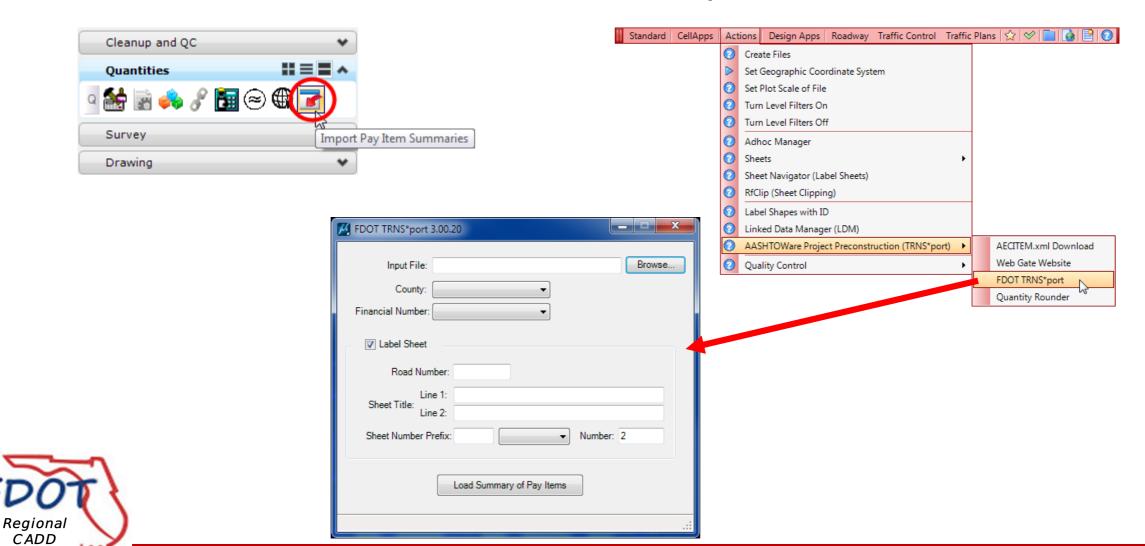




Do you want to open or save 0000000000000xml from fdotwp1.dot.state.fl.us?

Open Save Cancel

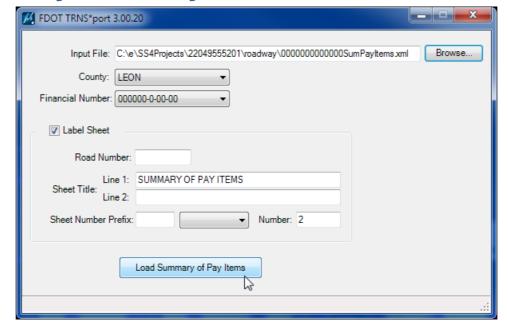
CADD Training 2016 In MS, select the FDOT Trnsport Quantities tool



- Select the Browse button and navigate to the save Summary of Pay Items report xml file.
- County and Financial Number are pulled in from the XML file.
- Label Sheet is toggled on by default.
 - Optional

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Click Load Summary of Pay Items





Questions???

Thank-you for joining today's session.

Need some HELP? Contact me...

(850) 414-4751

E-mail: Denise.Broom@dot.state.fl.us

OR: ecso.support@dot.state.fl.us

http://www.dot.state.fl.us/ecso

FDOT CADD Support Forum On-line

http://communities.bentley.com/communities/user_communities/fdot_cadd_support/default.aspx

